

(No Model.)

2 Sheets—Sheet 1.

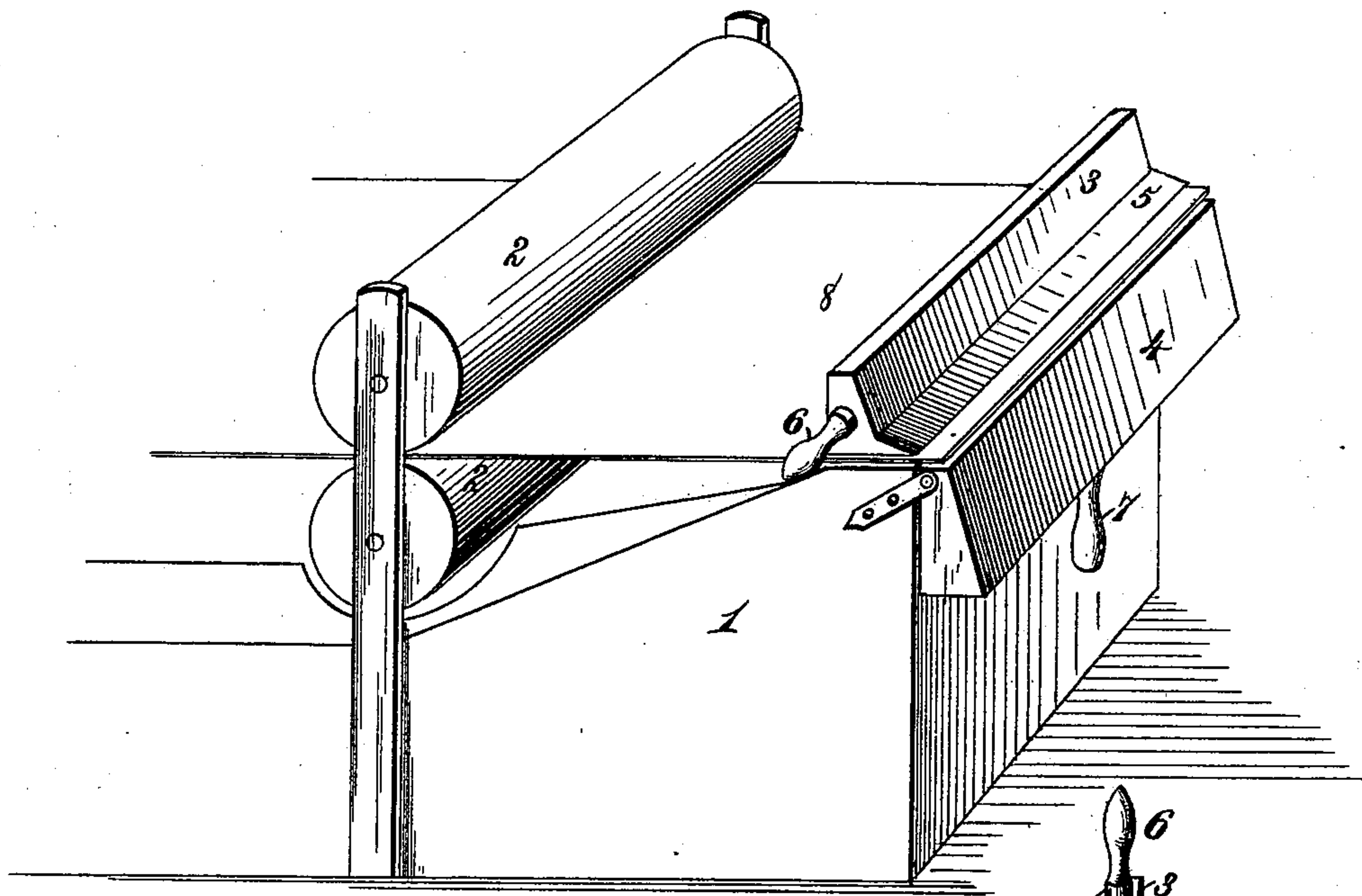
B. F. CALDWELL.

METHOD OF PAINTING METALLIC PLATES.

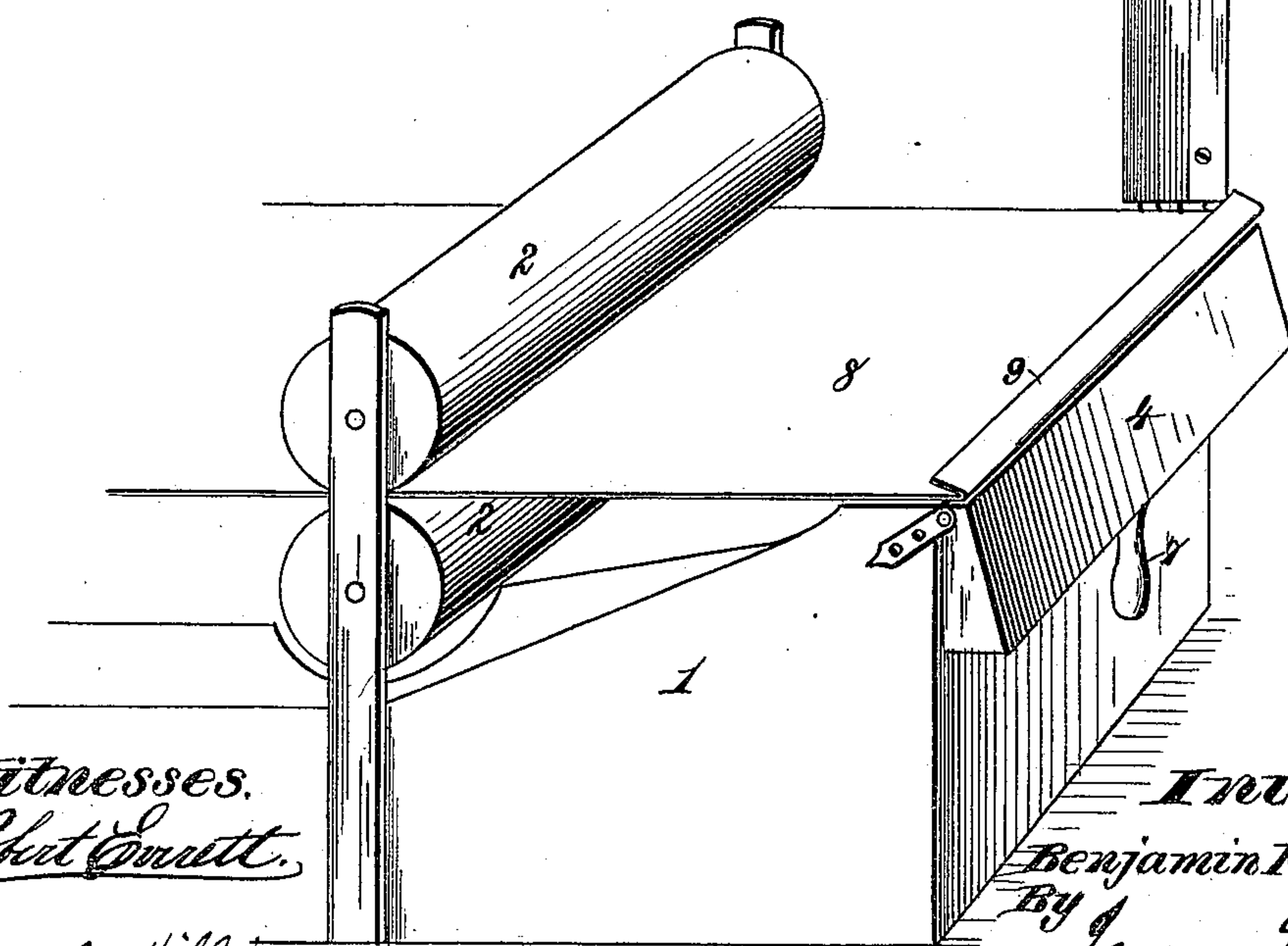
No. 347,990.

Patented Aug. 24, 1886.

*Fig. 1*



*Fig. 2.*



Witnesses.  
*Robert Smith.*

*Levy P. Hill.*

*Inventor.*

*Benjamin F. Caldwell.*

*By James L. Norris.*  
*Atty.*

(No Model.)

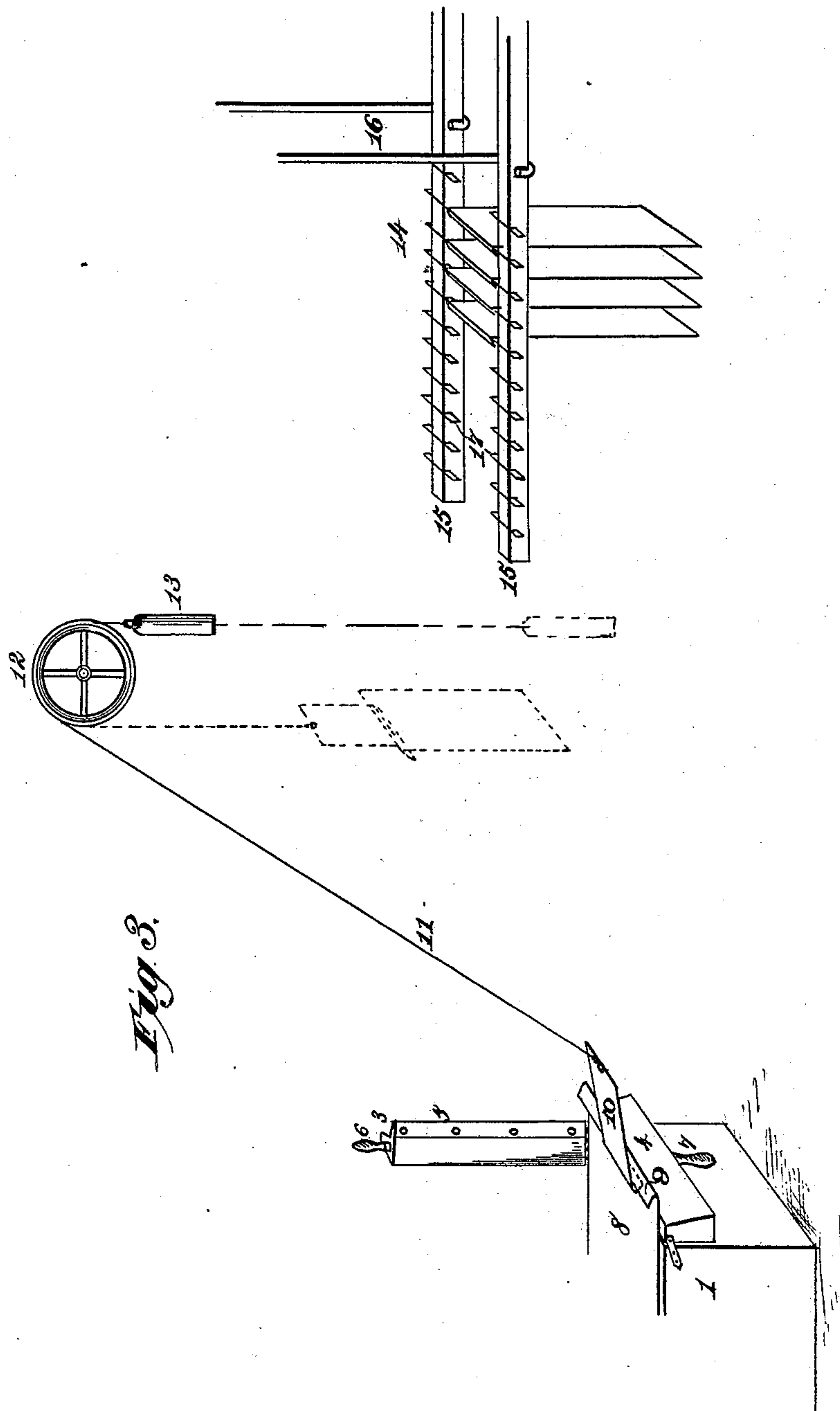
2 Sheets—Sheet 2.

B. F. CALDWELL.

METHOD OF PAINTING METALLIC PLATES.

No. 347,990.

Patented Aug. 24, 1886.



Witnesses.  
*Robert Everett.*  
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Inventor.  
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# UNITED STATES PATENT OFFICE.

BENJAMIN F. CALDWELL, OF WHEELING, WEST VIRGINIA.

## METHOD OF PAINTING METALLIC PLATES.

SPECIFICATION forming part of Letters Patent No. 347,990, dated August 24, 1886.

Application filed February 25, 1886. Serial No. 193,232. (No model.)

*To all whom it may concern:*

Be it known that I, BENJAMIN F. CALDWELL, a citizen of the United States, residing at Wheeling, in the county of Ohio and State of West Virginia, have invented new and useful Improvements in Method of Painting and Drying Metallic Plates, of which the following is a specification.

This invention relates to an improved method of painting, preparing, and drying metallic sheets, such as are employed for roofing.

Heretofore metallic sheets, whether painted by hand or machinery, have been dried by standing them on edge against any suitable or convenient support, and after such metallic roofing-sheets have been painted and dried one edge has been turned or bent at an angle to the sheet for the purpose of facilitating the formation of "lock-joints" when required. This ordinary manner of drying the painted metallic sheets by standing them around on edge is objectionable on account of the large space required and the difficulty and labor of handling the freshly-painted goods without marking and disfigurement, besides it is not practicable to handle freshly-painted metallic sheets with the desirable speed and economy of time when they are dried by standing on edge, as above recited.

These above-mentioned difficulties are obviated by my invention, which consists in the preparation of metallic roofing-sheets by mechanically painting both sides at the same time, then bending one end or the corners of one end at an angle to the body of the sheet, and then mechanically withdrawing the painted sheet from the painting-machine and suspending it by its bent or turned-over end until dry, said bent or turned-over end being adapted, if desired, to enter into the formation of the usual lock-joints, by which the several roofing-sheets are ordinarily connected.

In the annexed drawings illustrating my invention, Figure 1 is a view of a painting-machine provided with my improved devices for bending over one end of the metallic sheet. Fig. 2 is a view of said machine, showing the bent-over end of the painted metallic sheet and with the bending devices turned aside to permit the withdrawal of the painted and bent sheet. Fig. 3 is a view showing the manner of mechanically withdrawing the painted and

bent-over metallic sheets and suspending them side by side in a drying-rack.

Referring to the said drawings, the numeral 1 designates a painting-machine having upper and lower paint-rolls, 2, for applying coloring materials simultaneously to both sides of a metallic sheet. These rolls 2 may also serve to feed the sheet of metal forward as it is painted. It will be understood, however, that I do not confine myself to any particular construction of painting and feeding mechanism, as such can be varied in any well-known or convenient manner.

At the exit end of the painting-machine 1 is a bending mechanism, which consists of a pair of hinged pressure-bars or bending-dies, 3 and 4, one of which, as 3, has one end hinged to the side of the machine frame or table, while the other, as 4, has one side hinged to the end of said table. The die 3 extends across the painted metallic sheet, and has its forward lower edge provided with a beveled lip, 5, to correspond with the angle to which the end of the metallic sheet is to be bent. This beveled die 3 has at its free end a handle, 6, by which it may be turned aside before removing the painted and bent sheet of metal from the machine. The die 4 is shaped to correspond with the forward face of the die 3, and has a handle, 7, by which it is turned to and from said die 3 in the operation of bending the end of a metal sheet. As the metal sheet is painted it is fed forward beneath the die 3 until the forward end of said sheet projects beyond the front lower edge of the die a distance corresponding to the width of the flange or turned-over edge required. The die 4 is then raised or rotated backward beneath the projecting forward end of the metal sheet so as to bend it back, and in contact with the beveled lip 5 of the die 3, thus forming on the metal sheet 8 a flanged or turned-over edge, 9, of the required width and angle. The die 4 is now lowered or turned down to its normal position, and the bent metal sheet is allowed to feed forward so as to cause the flange 9 to clear the beveled surface or lip 5 of the die 3, after which the latter die may be raised or turned to one side. In practice, it is not necessary or desirable to turn the die 3 aside until the metallic sheet has been moved forward sufficiently to become nearly or quite painted, as said die



will serve as a pressure device to hold the metal plate or sheet 8 steady while being painted.

In order to mechanically withdraw the painted and bent-over metallic sheet and convey it to a drying-rack without unnecessary handling, a broad hook, 10, is engaged with the flange 9 at the proper time. This broad hook 10 is attached to one end of a cord or belt, 11, which passes over a pulley, 12, and has a weight, 13, at its other end. By this means, the die 3 being now turned aside, the painted metal sheet 8 can be readily withdrawn from the painting-machine and elevated to a depending position without any manual contact. This pulley 12, with its belt or cord 11, having a hook, 10, at one end, and a counter poise or weight, 13, at the other end, also enables the painted metallic sheet to be easily and rapidly shifted to a rack, 14, from which it is suspended until its painted surfaces are thoroughly dry or in condition to permit handling.

The drying-rack 14 may consist of parallel beams 15, suspended by means of metallic rods 16, or otherwise supported, and having a series of laterally-projecting knife-edge bearings, 17, for receiving the turned-over edges or flanges 9 of the painted metallic plates or sheets. Any number of parallel rack-beams 15 may be provided at intervals corresponding to the width of the metallic sheet to be suspended between said beams. The knife-edge bearings 17 are preferably arranged along each beam 15 at intervals of two inches, and project on one or both sides of said beams sufficiently to afford an adequate support for the suspended metallic sheets. After each sheet of metal is supported on the knife-edge bearings 17 by means of the hook 10, said hook can be readily disengaged from the flange 9 and be shifted to the painting-machine to withdraw and convey another painted metallic sheet to the drying-rack.

If desired, the hoisting devices can be so arranged as to allow the painted metallic plates or sheets to be rapidly conveyed to racks located in any direction with relation to the painting and bending machine.

It is obvious that by this simple and inexpensive method of painting, bending, and drying metallic sheets I am enabled to effect a great economy in time, labor, and space. It

will also be observed that by suspending the painted sheets of metal in such a way as to avoid contact of the adjacent sheets they will dry more rapidly and perfectly without liability of abrasion or other injury.

By turning or bending one end of the freshly-painted metallic sheet before it becomes dry, I not only have a convenient means for suspending the sheet while drying, but said turned-over or flanged portion of the sheet is at the same time made ready to form a lock-joint with a similar sheet, as required, for making the several sheets up into rolls for ordinary roofing purposes.

In painting sheets of metal to make corrugated roofing, as no lock-joints are required, it will not be necessary to bend the ends of the metal sheets entirely across. In this case it will be sufficient to simply turn the corners of the metal sheet at its forward end before removing it from the painting-machine, its removal being effected by means of a hook capable of extending from one turned-over corner to the other, and when the sheet of metal is thus conveyed to the drying-rack these turned-over corners will suffice to suspend it on the knife-edge bearings. After such sheets are dried their turned-over corners can be bent back before the sheet is subjected to the operation of corrugating, which, as usually practiced, is done after the sheets have been painted.

What I claim as my invention is—

1. The herein-described method of preparing metallic roofing-sheets, which consists in painting the same, then forming a turned-over edge or flange at one end of said sheet, and then suspending it by its turned-over edge until dry, substantially as described.

2. The herein-described method of preparing metallic roofing-sheets, which consists in mechanically and simultaneously painting both sides of the same, then forming a turned-over edge, corner, or flange at one end of said sheet, and then suspending it by its turned-over edge until dry, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

BENJAMIN F. CALDWELL.

Witnesses:

W. VARDY,

W. F. PETERSON.